

10/516079

WT12 Rec'd PCT/PTO 29 NOV 2004

PCT/US03/17410

WO 03/101474

SEQUENCE LISTING

<110> ALVAREZ, Vernon L.  
GRIMES, Carol A.  
GONDA, Matthew A.

<120> Combination chemotherapy with chlorotoxin

<130> 51530-5006-WO

<150> US 60/406,033  
<151> 2002-08-27

<150> US 60/384,171  
<151> 2002-05-31

<160> 95

<170> PatentIn version 3.2

<210> 1  
<211> 36  
<212> PRT  
<213> Leiurus quinquestriatus

<220>  
<221> misc\_feature  
<223> Chlorotoxin

<400> 1

Met Cys Met Pro Cys Phe Thr Thr Asp His Gln Met Ala Arg Lys Cys  
1 5 10 15

Asp Asp Cys Cys Gly Gly Lys Gly Arg Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Leu Cys Arg  
35

<210> 2  
<211> 42  
<212> PRT  
<213> Leiurus quinquestriatus

<400> 2

His His His His His Met Cys Met Pro Cys Phe Thr Thr Asp His  
1 5 10 15

Gln Met Ala Arg Lys Cys Asp Asp Cys Cys Gly Gly Lys Gly Arg Gly  
20 25 30

Lys Cys Tyr Gly Pro Gln Cys Leu Cys Arg  
35 40

<210> 3  
<211> 37  
<212> PRT  
<213> Leiurus quinquestriatus

<400> 3

Tyr Met Cys Met Pro Cys Phe Thr Thr Asp His Gln Met Ala Arg Lys  
1 5 10 15

Cys Asp Asp Cys Cys Gly Gly Lys Gly Arg Gly Lys Cys Tyr Gly Pro  
20 25 30

Gln Cys Leu Cys Arg  
35

<210> 4  
<211> 39  
<212> PRT  
<213> Leiurus quinquestriatus

<400> 4

Tyr Ser Tyr Met Cys Met Pro Cys Phe Thr Thr Asp His Gln Met Ala  
1 5 10 15

Arg Lys Cys Asp Asp Cys Cys Gly Gly Lys Gly Arg Gly Lys Cys Tyr  
20 25 30

Gly Pro Gln Cys Leu Cys Arg  
35

<210> 5  
<211> 36  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin variant

<400> 5

Met Cys Met Pro Cys Phe Thr Thr Asp His Gln Met Ala Arg Lys Cys  
1 5 10 15

Asp Asp Cys Cys Gly Gly Lys Gly Arg Gly Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Leu Cys Arg  
35

<210> 6  
<211> 35  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin variant

<400> 6

Arg Cys Lys Pro Cys Phe Thr Thr Asp Pro Gln Met Ser Lys Lys Cys  
1 5 10 15

Ala Asp Cys Cys Gly Gly Lys Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Leu Cys  
35

<210> 7  
<211> 38  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin variant

<400> 7

Arg Cys Ser Pro Cys Phe Thr Thr Asp Gln Gln Met Thr Lys Lys Cys  
1 5 10 15

Tyr Asp Cys Cys Gly Gly Lys Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Ile Cys Ala Pro Tyr  
35

<210> 8  
<211> 7  
<212> PRT  
<213> Leiurus quinquestriatus

<220>  
<221> misc\_feature  
<223> Derivative of Chlorotoxin: amino acid residues 23-29

<400> 8

Lys Gly Arg Gly Lys Ser Tyr  
1 5

<210> 9  
<211> 7  
<212> PRT  
<213> Leiurus quinquestriatus

<220>  
<221> misc\_feature  
<223> Derivative of Chlorotoxin: amino acid residues 8-14

<400> 9  
Thr Asp His Gln Met Ala Arg  
1 5

<210> 10  
<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin alpha peptide

<400> 10  
Thr Asp His Gln Met Ala Arg Lys Ser  
1 5

<210> 11  
<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Variant of chlorotoxin alpha peptide

<400> 11  
Thr Ala His Ala Met Ala Arg Lys Ser  
1 5

<210> 12  
<211> 36  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Variant peptide of chlorotoxin

<400> 12  
Met Cys Met Pro Cys Phe Thr Thr Ala His Ala Met Ala Arg Lys Cys  
1 5 10 15  
Met Cys Met Pro Cys Phe Thr Thr Ala His Ala Met Ala Arg Lys Cys

Asp Asp Cys Cys Gly Gly Lys Gly Arg Cys Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Leu Cys Arg  
35

<210> 13  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> motif for chlorotoxin derivatives

<220>  
<221> MISC\_FEATURE  
<222> (1)..(9)  
<223> Xaa at position 3 = Asn or Glu; Xaa at position 4 = Ala, Arg,  
Asn, Asp, Cys, Gln, Glu, Gly, His, Ile, Leu, Lys, Met, Phe, Ser,  
Thr, Trp, Tyr or Val; Xaa at position 5 = Asn or Gln; Xaa at  
position 7 = Ser or Thr; Xaa at position 8 = His, Lys or Arg.

<400> 13

Thr Thr Xaa Xaa Xaa Met Xaa Xaa Lys  
1 5

<210> 14  
<211> 9  
<212> PRT  
<213> Leiurus quinquestriatus

<400> 14

Thr Thr Asp His Gln Met Ala Arg Lys  
1 5

<210> 15  
<211> 35  
<212> PRT  
<213> Mesobuthus tamulus

<400> 15

Arg Cys Lys Pro Cys Phe Thr Asp Pro Gln Met Ser Lys Lys Cys  
1 5 10 15

Ala Asp Cys Cys Gly Gly Lys Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Leu Cys  
35

<210> 16  
<211> 34  
<212> PRT

<213> Artificial sequence

<220>

<223> Small Toxin consensus sequence

<220>

<221> MISC\_FEATURE

<222> (2)..(2)

<223> Xaa can be Met or Lys

<220>

<221> MISC\_FEATURE

<222> (9)..(9)

<223> Xaa can be His or Pro

<220>

<221> MISC\_FEATURE

<222> (16)..(16)

<223> Xaa can be Asp or Ala

<400> 16

Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Gln Met Ala Lys Lys Cys Xaa  
1 5 10 15

Asp Cys Cys Gly Gly Lys Gly Lys Cys Tyr Gly Pro Gln Cys  
20 25 30

Leu Cys

<210> 17

<211> 38

<212> PRT

<213> Leiurus quinquestriatus

<400> 17

Arg Cys Ser Pro Cys Phe Thr Thr Asp Gln Gln Met Thr Lys Lys Cys  
1 5 10 15

Tyr Asp Cys Cys Gly Gly Lys Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Ile Cys Ala Pro Tyr  
35

<210> 18

<211> 34

<212> PRT

<213> Artificial sequence

<220>

<223> Probable Toxin LQH 8/6 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)  
<223> Xaa can be Met or Ser

<220>  
<221> MISC\_FEATURE  
<222> (9)..(9)  
<223> Xaa can be His or Gln

<220>  
<221> MISC\_FEATURE  
<222> (12)..(12)  
<223> Xaa can be Ala or Thr

<220>  
<221> MISC\_FEATURE  
<222> (16)..(16)  
<223> Xaa can be Asp or Tyr

<400> 18

Cys	Xaa	Pro	Cys	Phe	Thr	Thr	Asp	Xaa	Gln	Met	Xaa	Lys	Lys	Cys	Xaa
1															
														15	
															15

Asp	Cys	Cys	Gly	Gly	Lys	Gly	Lys	Gly	Lys	Cys	Tyr	Gly	Pro	Gln	Cys
20															
														30	

Ile Cys

<210> 19  
<211> 61  
<212> PRT  
<213> Mesobuthus martensii

<220>  
<221> MISC\_FEATURE  
<222> (1)..(61)  
<223> Xaa can be any amino acid

<400> 19

Met	Lys	Phe	Leu	Tyr	Gly	Ile	Val	Phe	Ile	Ala	Leu	Phe	Leu	Thr	Val
1															
														15	
															15

Met	Phe	Ala	Thr	Gln	Thr	Asp	Gly	Cys	Gly	Pro	Cys	Phe	Thr	Thr	Asp
20															
														30	

Ala	Asn	Met	Ala	Arg	Lys	Cys	Arg	Glu	Cys	Cys	Gly	Gly	Ile	Gly	Xaa
35															

Xaa Lys Cys Phe Gly Pro Gln Cys Leu Cys Asn Arg Ile  
 50   60

<210> 20  
 <211> 34  
 <212> PRT  
 <213> Artificial sequence  
 <220>  
 <223> Chinese Scorpion consensus sequence

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa can be Met or Gly

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(9)  
 <223> Xaa can be His or Ala

<220>  
 <221> MISC\_FEATURE  
 <222> (16)..(16)  
 <223> Xaa can be Asp or Arg

<220>  
 <221> MISC\_FEATURE  
 <222> (22)..(22)  
 <223> Xaa can be Lys or Ile

<220>  
 <221> MISC\_FEATURE  
 <222> (24)..(25)  
 <223> Xaa can be any amino acid

<400> 20

Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Arg Lys Cys Xaa  
 1   10   15  
 5

Asp Cys Cys Gly Gly Xaa Gly Xaa Xaa Lys Cys Phe Gly Pro Gln Cys  
 20   25   30

Leu Cys

<210> 21  
 <211> 59  
 <212> PRT  
 <213> Mesobuthus martensii

<400> 21  
 Met Lys Phe Leu Tyr Gly Ile Val Phe Ile Ala Leu Phe Leu Thr Val  
 1   5   10   15

Met Phe Ala Thr Gln Thr Asp Gly Cys Gly Pro Cys Phe Thr Thr Asp  
20 25 30

Ala Asn Met Ala Arg Lys Cys Arg Glu Cys Cys Gly Gly Ile Gly Lys  
35 40 45

Cys Phe Gly Pro Gln Cys Leu Cys Asn Arg Ile  
50 55

<210> 22  
<211> 32  
<212> PRT  
<213> Artificial sequence

<220>  
<221> Chinese Scorpion consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)  
<223> Xaa can be Met or Gly

<220>  
<221> MISC\_FEATURE  
<222> (9)..(9)  
<223> Xaa can be His or Ala

<220>  
<221> MISC\_FEATURE  
<222> (16)..(16)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (22)..(22)  
<223> Xaa can be Lys or Ile

<220>  
<221> MISC\_FEATURE  
<222> (25)..(25)  
<223> Xaa can be Gly or Cys

<220>  
<221> MISC\_FEATURE  
<222> (26)..(26)  
<223> Xaa can be Lys or Phe

<220>  
<221> MISC\_FEATURE  
<222> (27)..(27)  
<223> Xaa can be Cys or Gly

<220>  
<221> MISC\_FEATURE  
<222> (28)..(28)

<223> Xaa can be Tyr or Pro

<220>

<221> MISC\_FEATURE

<222> (29)..(29)

<223> Xaa can be Gly or Gln

<220>

<221> MISC\_FEATURE

<222> (30)..(30)

<223> Xaa can be Pro or Cys

<220>

<221> MISC\_FEATURE

<222> (31)..(31)

<223> Xaa can be Gln or Leu

<400> 22

Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Arg Lys Cys Xaa  
1 5 10 15

Asp Cys Cys Gly Gly Xaa Gly Lys Xaa Xaa Xaa Xaa Xaa Cys  
20 25 30

<210> 23

<211> 37

<212> PRT

<213> Mesobuthus eupeus

<220>

<221> MISC\_FEATURE

<222> (1)..(37)

<223> Xaa can be any amino acid

<400> 23

Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Asn Lys Cys  
1 5 10 15

Arg Asp Cys Cys Gly Gly Xaa Gly Lys Xaa Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Leu Cys Asn Arg  
35

<210> 24

<211> 35

<212> PRT

<213> Artificial sequence

<220>

<223> Insect toxin I5 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (14)..(14)  
<223> Xaa can be Arg or Asn

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (23)..(26)  
<223> Xaa can be any amino acid

<400> 24

Met Cys Met Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Xaa Lys Cys  
1 5 10 15

Xaa Asp Cys Cys Gly Gly Xaa Gly Lys Xaa Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Leu Cys  
35

<210> 25  
<211> 35  
<212> PRT  
<213> Mesobuthus eupeus

<400> 25

Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Asn Lys Cys  
1 5 10 15

Arg Asp Cys Cys Gly Gly Lys Lys Cys Phe Gly Pro Gln Cys Leu  
20 25 30

Cys Asn Arg  
35

<210> 26  
<211> 33  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Insect toxin I5 consensus sequence

```
<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa can be His or Pro

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> Xaa can be Arg or Asn

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> Xaa can be Asp or Arg

<220>
<221> MISC_FEATURE
<222> (23)..(24)
<223> Xaa can be Lys or Gly

<220>
<221> MISC_FEATURE
<222> (26)..(26)
<223> Xaa can be Gly or Cys

<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa can be Lys or Phe

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa can be Cys or Gly

<220>
<221> MISC_FEATURE
<222> (29)..(29)
<223> Xaa can be Tyr or Pro

<220>
<221> MISC_FEATURE
<222> (30)..(30)
<223> Xaa can be Gly or Gln

<220>
<221> MISC_FEATURE
<222> (31)..(31)
<223> Xaa can be Pro or Cys

<220>
<221> MISC_FEATURE
<222> (32)..(32)
<223> Xaa can be Gln or Leu

<400> 26
Met Cys Met Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Xaa Lys Cys
1 5 10 15
```

Xaa Asp Cys Cys Gly Gly Xaa Xaa Lys Xaa Xaa Xaa Xaa Xaa Xaa  
20 25 30

Cys

<210> 27  
<211> 38  
<212> PRT  
<213> Mesobuthus eupeus

<220>  
<221> MISC\_FEATURE  
<222> (1)..(38)  
<223> Xaa can be any amino acid

<400> 27

Met Cys Met Pro Cys Phe Thr Thr Arg Pro Asp Met Ala Gln Gln Cys  
1 5 10 15

Arg Ala Cys Cys Lys Gly Xaa Xaa Arg Gly Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Ile Cys Gly Tyr Asp  
35

<210> 28  
<211> 35  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Insectotoxin II consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (9)..(9)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (11)..(11)  
<223> Xaa can be Gln or Asp

<220>  
<221> MISC\_FEATURE  
<222> (14)..(14)

<223> Xaa can be Arg or Gln

<220>

<221> MISC\_FEATURE

<222> (15)..(15)

<223> Xaa can be Lys or Gln

<220>

<221> MISC\_FEATURE

<222> (17)..(17)

<223> Xaa can be Asp or Arg

<220>

<221> MISC\_FEATURE

<222> (18)..(18)

<223> Xaa can be Asp or Ala

<220>

<221> MISC\_FEATURE

<222> (21)..(21)

<223> Xaa can be Gly or Lys

<220>

<221> MISC\_FEATURE

<222> (23)..(24)

<223> Xaa can be any amino acid

<400> 28

Met	Cys	Met	Pro	Cys	Phe	Thr	Thr	Xaa	Xaa	Xaa	Met	Ala	Xaa	Xaa	Cys
1				5										10	15

Xaa	Xaa	Cys	Cys	Xaa	Gly	Xaa	Xaa	Arg	Gly	Lys	Cys	Phe	Gly	Pro	Gln
				20				25					30		

Cys	Leu	Cys
		35

<210> 29

<211> 36

<212> PRT

<213> Mesobuthus eupeus

<400> 29

Met	Cys	Met	Pro	Cys	Phe	Thr	Thr	Arg	Pro	Asp	Met	Ala	Gln	Gln	Cys
1					5									10	15

Arg	Ala	Cys	Cys	Lys	Gly	Arg	Gly	Lys	Cys	Phe	Gly	Pro	Gln	Cys	Leu
				20				25				30			

Cys	Gly	Tyr	Asp
		35	

<210> 30

```
<211> 33
<212> PRT
<213> Artificial sequence

<220>
<223> Insectotoxin II consensus sequence

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa can be Asp or Arg

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa can be His or Pro

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa can be Gln or Asp

<220>
<221> MISC_FEATURE
<222> (14)..(14)
<223> Xaa can be Arg or Gln

<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Xaa can be Lys or Gln

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> Xaa can be Asp or Arg

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> Xaa can be Asp or Arg

<220>
<221> MISC_FEATURE
<222> (21)..(21)
<223> Xaa can be Gly or Lys

<220>
<221> MISC_FEATURE
<222> (26)..(26)
<223> Xaa can be Gly or Cys

<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> Xaa can be Lys or Phe

<220>
<221> MISC_FEATURE
<222> (28)..(28)
```

<223> Xaa can be Cys or Gly

<220>  
 <221> MISC\_FEATURE  
 <222> (29)..(29)  
 <223> Xaa can be Tyr or Pro

<220>  
 <221> MISC\_FEATURE  
 <222> (30)..(30)  
 <223> Xaa can be Gly or Gln

<220>  
 <221> MISC\_FEATURE  
 <222> (31)..(31)  
 <223> Xaa can be Pro or Cys

<220>  
 <221> MISC\_FEATURE  
 <222> (32)..(32)  
 <223> Xaa can be Gln or Leu

<400> 30

Met Cys Met Pro Cys Phe Thr Thr Xaa Xaa Xaa Met Ala Xaa Xaa Cys  
 1 5 10 15

Xaa Xaa Cys Cys Xaa Gly Lys Gly Lys Xaa Xaa Xaa Xaa Xaa Xaa  
 20 25 30

Cys

<210> 31  
 <211> 37  
 <212> PRT  
 <213> Mesobuthus eupeus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(37)  
 <223> Xaa can be any amino acid

<400> 31

Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Lys Lys Cys  
 1 5 10 15

Arg Asp Cys Cys Gly Gly Asn Gly Xaa Xaa Lys Cys Phe Gly Pro Gln  
 20 25 30

Cys Leu Cys Asn Arg  
 35

<210> 32  
<211> 35  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Insectotoxin 15A consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (23)..(23)  
<223> Xaa can be Lys or Asn

<220>  
<221> MISC\_FEATURE  
<222> (25)..(26)  
<223> Xaa can be any amino acid

<400> 32  
Met Cys Met Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Lys Lys Cys  
1 5 10 15  
Xaa Asp Cys Cys Gly Gly Xaa Gly Xaa Xaa Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Leu Cys  
35

<210> 33  
<211> 35  
<212> PRT  
<213> Mesobuthus eupeus

<400> 33  
Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Lys Lys Cys  
1 5 10 15  
Arg Asp Cys Cys Gly Gly Asn Gly Lys Cys Phe Gly Pro Gln Cys Leu  
20 25 30

Cys Asn Arg  
35

<210> 34  
<211> 33  
<212> PRT  
<213> Artificial sequence

<220>  
<221> Insectotoxin 15A consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (23)..(23)  
<223> Xaa can be Lys or Asn

<220>  
<221> MISC\_FEATURE  
<222> (26)..(26)  
<223> Xaa can be Gly or Cys

<220>  
<221> MISC\_FEATURE  
<222> (27)..(27)  
<223> Xaa can be Lys or Phe

<220>  
<221> MISC\_FEATURE  
<222> (28)..(28)  
<223> Xaa can be Cys or Gly

<220>  
<221> MISC\_FEATURE  
<222> (29)..(29)  
<223> Xaa can be Tyr or Pro

<220>  
<221> MISC\_FEATURE  
<222> (30)..(30)  
<223> Xaa can be Gly or Gln

<220>  
<221> MISC\_FEATURE  
<222> (31)..(31)  
<223> Xaa can be Pro or Cys

<220>  
<221> MISC\_FEATURE  
<222> (32)..(32)  
<223> Xaa can be Gln or Leu

<400> 34

Met Cys Met Pro Cys Phe Thr Thr Asp Xaa Asn Met Ala Lys Lys Cys .  
 1 5 10 15

Xaa Asp Cys Cys Gly Gly Xaa Gly Lys Xaa Xaa Xaa Xaa Xaa Xaa  
 20 25 30

Cys

<210> 35  
 <211> 37  
 <212> PRT  
 <213> Androctonus mauretanicus

<220>  
 <221> MISC\_FEATURE  
 <222> (1)..(37)  
 <223> Xaa can be any amino acid

<400> 35  
 Cys Gly Pro Cys Phe Thr Thr Asp Pro Tyr Thr Glu Ser Lys Cys Ala  
 1 5 10 15  
 Cys Gly Gly Xaa Xaa Arg Gly Lys Cys Val Gly Pro Gln Cys

Thr Cys Cys Gly Gly Xaa Xaa Arg Gly Lys Cys Val Gly Pro Gln Cys  
 20 25 30

Leu Cys Asn Arg Ile  
 35

<210> 36  
 <211> 34  
 <212> PRT  
 <213> Artificial sequence

<220>  
 <223> Neurotoxin P2 consensus sequence

<220>  
 <221> MISC\_FEATURE  
 <222> (2)..(2)  
 <223> Xaa can be Met or Gly

<220>  
 <221> MISC\_FEATURE  
 <222> (9)..(9)  
 <223> Xaa can be His or Pro

<220>  
 <221> MISC\_FEATURE  
 <222> (10)..(10)  
 <223> Xaa can be Gln or Tyr

```

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa can be Met or Thr

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa can be Ala or Glu

<220>
<221> MISC_FEATURE
<222> (13)..(13)
<223> Xaa can be Arg or Ser

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> Xaa can be Asp or Ala

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> Xaa can be Asp or Thr

<220>
<221> MISC_FEATURE
<222> (22)..(23)
<223> Xaa can be any amino acid

<220>
<221> MISC_FEATURE
<222> (28)..(28)
<223> Xaa can be Tyr or Val

<400> 36
      Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Xaa Xaa Xaa Lys Cys Xaa
      1           5             10          15
      Cys Xaa Cys Gly Gly Xaa Xaa Arg Gly Lys Cys Xaa Gly Pro Gln Cys
      20            25          30
      Leu Cys

<210> 37
<211> 35
<212> PRT
<213> Androctonus mauretanicus

<400> 37
      Cys Gly Pro Cys Phe Thr Thr Asp Pro Tyr Thr Glu Ser Lys Cys Ala
      1           5             10          15

```

Thr Cys Cys Gly Gly Arg Gly Lys Cys Val Gly Pro Gln Cys Leu Cys  
20 25 30

Asn Arg Ile  
35

<210> 38  
<211> 32  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Neurotoxin P2 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)  
<223> Xaa can be Met or Gly

<220>  
<221> MISC\_FEATURE  
<222> (9)..(9)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be Gln or Tyr

<220>  
<221> MISC\_FEATURE  
<222> (11)..(11)  
<223> Xaa ca be Met or Thr

<220>  
<221> MISC\_FEATURE  
<222> (12)..(12)  
<223> Xaa can be Ala or Glu

<220>  
<221> MISC\_FEATURE  
<222> (13)..(13)  
<223> Xaa can be Arg or Ser

<220>  
<221> MISC\_FEATURE  
<222> (16)..(16)  
<223> Xaa can be Asp or Ala

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> Xaa can be Asp or Thr

<220>  
<221> MISC\_FEATURE  
<222> (25)..(25)  
<223> Xaa can be Gly or Cys

<220>  
<221> MISC\_FEATURE  
<222> (26)..(26)  
<223> Xaa can be Lys or Val

<220>  
<221> MISC\_FEATURE  
<222> (27)..(27)  
<223> Xaa can be Cys or Gly

<220>  
<221> MISC\_FEATURE  
<222> (28)..(28)  
<223> Xaa can be Tyr or Pro

<220>  
<221> MISC\_FEATURE  
<222> (29)..(29)  
<223> Xaa can be Gly or Gln

<220>  
<221> MISC\_FEATURE  
<222> (30)..(30)  
<223> Xaa can be Pro or Cys

<220>  
<221> MISC\_FEATURE  
<222> (31)..(31)  
<223> Xaa can be Gln or Leu

<400> 38

Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Xaa Xaa Xaa Xaa Lys Cys Xaa  
1 5 10 15

Xaa Cys Cys Gly Gly Lys Gly Lys Xaa Xaa Xaa Xaa Xaa Xaa Cys  
20 25 30

<210> 39  
<211> 37  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Toxin consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (1)..(37)  
<223> Xaa can be any amino acid

<400> 39

Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Lys Lys Cys  
1 5 10 15

Arg Asp Cys Cys Gly Gly Lys Gly Xaa Xaa Lys Cys Phe Gly Pro Gln  
20 25 30

Cys Leu Cys Asn Arg  
35

<210> 40  
<211> 35  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Toxin consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> Xaa can be Met, Lys or Ser

<220>  
<221> MISC\_FEATURE  
<222> (10)..(10)  
<223> Xaa can be His, Pro, or Gln

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> Xaa can be Asp, Ala, or Tyr

<400> 40

Arg Cys Xaa Pro Cys Phe Thr Thr Asp Xaa Gln Met Ser Lys Lys Cys  
1 5 10 15

Xaa Asp Cys Cys Gly Gly Lys Gly Lys Gly Lys Cys Tyr Gly Pro Gln  
20 25 30

Cys Leu Cys  
35

<210> 41  
<211> 35  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Toxin consensus sequence

<400> 41

Met Cys Met Pro Cys Phe Thr Thr Asp Pro Asn Met Ala Arg Lys Cys  
1 5 10 15

Arg Asp Cys Cys Gly Gly Arg Gly Lys Cys Phe Gly Pro Gln Cys Leu

20

25

30

Cys Asn Arg  
35

<210> 42  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep8-Ctxl

<400> 42

Cys Gly Gly Lys Gly Arg Gly Lys Cys Tyr  
1 5 10

<210> 43  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep8-SCX1\_BUTSI

<400> 43

Cys Gly Gly Lys Gly Lys Gly Lys Cys Tyr  
1 5 10

<210> 44  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep8-AF079059\_2

<400> 44

Cys Gly Gly Ile Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 45  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)...(4)

<223> Xaa can be Lys or Ile

<400> 45

Cys Gly Gly Xaa Gly Arg Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 46

<211> 6

<212> PRT

<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>

<221> MISC\_FEATURE

<222> (4)..(4)

<223> Xaa can be Lys or Ile

<400> 46

Cys Gly Gly Xaa Gly Lys  
1 5

<210> 47

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> Pep8-NJ0361 sequence

<400> 47

Cys Gly Gly Gly Lys Lys Cys Phe Gly Pro  
1 5 10

<210> 48

<211> 12

<212> PRT

<213> Artificial sequence

<220>

<223> Chlorotoxin Peptide 8 consensus sequence

<400> 48

Cys Gly Gly Lys Gly Lys Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 49

<211> 6

<212> PRT

<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)..(5)  
<223> Xaa can be Lys or Gly

<400> 49

Cys Gly Gly Xaa Xaa Lys  
1 5

<210> 50  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep8-SCX1\_BUTEU sequence

<400> 50

Cys Lys Gly Arg Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 51  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (3)..(3)  
<223> Xaa can be Gly or Cys

<400> 51

Cys Gly Xaa Lys Gly Arg Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 52  
<211> 6  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (2)..(2)

<223> Xaa can be Gly or Lys

<400> 52

Cys Xaa Gly Lys Gly Lys  
1 5

<210> 53

<211> 10

<212> PRT

<213> Artificial sequence

<220>

<223> Pep8-SCX5\_BUTEU sequence

<400> 53

Cys Gly Gly Asn Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 54

<211> 12

<212> PRT

<213> Artificial sequence

<220>

<223> Chlorotoxin Peptide 8 consensus sequence

<220>

<221> MISC\_FEATURE

<222> (4)..(4)

<223> Xaa can be Lys or Asn

<400> 54

Cys Gly Gly Xaa Gly Arg Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 55

<211> 6

<212> PRT

<213> Artificial sequence

<220>

<223> Chlorotoxin Peptide 8 consensus sequence

<220>

<221> MISC\_FEATURE

<222> (4)..(4)

<223> Xaa can be Lys or Asn

<400> 55

Cys Gly Gly Xaa Gly Lys  
1 5

<210> 56  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep8-SCXP\_ANDMA sequence

<400> 56

Cys Gly Gly Arg Gly Lys Cys Val Gly Pro  
1 5 10

<210> 57  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (10)...(10)  
<223> Xaa can be Tyr or Val

<400> 57

Cys Gly Gly Lys Gly Arg Gly Lys Cys Xaa Gly Pro  
1 5 10

<210> 58  
<211> 6  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<400> 58

Cys Gly Gly Lys Gly Lys  
1 5

<210> 59  
<211> 12  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)...(5)

<223> Xaa can be Lys or Gly

<400> 59

Cys Gly Gly Xaa Xaa Arg Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 60

<211> 10

<212> PRT

<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 8 consensus sequence

<400> 60

Cys Gly Gly Lys Gly Lys Cys Phe Gly Pro  
1 5 10

<210> 61

<211> 10

<212> PRT

<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 sequence

<400> 61

Thr Thr Asp His Gln Met Ala Arg Lys Cys  
1 5 10

<210> 62

<211> 10

<212> PRT

<213> Artificial sequence

<220>  
<223> Pep21-SCX1-BUTSI sequence

<400> 62

Thr Thr Asp Pro Gln Met Ser Lys Lys Cys  
1 5 10

<210> 63

<211> 10

<212> PRT

<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

<220>  
<221> MISC\_FEATURE

<222> (4)..(4)  
<223> Xaa can be His or Pro

<400> 63

Thr Thr Asp Xaa Gln Met Ala Lys Lys Cys  
1 5 10

<210> 64  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep21-SCX8\_LEIQH sequence

<400> 64

Thr Thr Asp Gln Gln Met Thr Lys Lys Cys  
1 5 10

<210> 65  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)..(4)  
<223> Xaa can be His or Gln

<220>  
<221> MISC\_FEATURE  
<222> (7)..(7)  
<223> Xaa can be Ala or Thr

<400> 65

Thr Thr Asp Xaa Gln Met Xaa Lys Lys Cys  
1 5 10

<210> 66  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep21-AF079059\_2 sequence

<400> 66

Thr Thr Asp Ala Asn Met Ala Arg Lys Cys  
1 5 10

<210> 67  
<211> 10  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)..(4)  
<223> Xaa can be His or Ala

<400> 67  
Thr Thr Asp Xaa Asn Met Ala Arg Lys Cys  
1 5 10

<210> 68  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep21-JN0361 sequence

<400> 68  
Thr Thr Asp Pro Asn Met Ala Asn Lys Cys  
1 5 10

<210> 69  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

<220>  
<221> MISC\_FEATURE  
<222> (4)..(4)  
<223> Xaa can be either His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (8)..(8)  
<223> Xaa can be Arg or Asn

<400> 69  
Thr Thr Asp Xaa Asn Met Ala Xaa Lys Cys  
1 5 10

<210> 70

<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep21-SCX1\_BUTEU sequence

<400> 70

Thr Thr Arg Pro Asp Met Ala Gln Gln Cys  
1 5 10

<210> 71  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

/  
<220>  
<221> MISC\_FEATURE  
<222> (3) .. (3)  
<223> Xaa can be Asp or Arg

<220>  
<221> MISC\_FEATURE  
<222> (4) .. (4)  
<223> Xaa can be His or Pro

<220>  
<221> MISC\_FEATURE  
<222> (5) .. (5)  
<223> Xaa can be Gln or Asp

<220>  
<221> MISC\_FEATURE  
<222> (8) .. (8)  
<223> Xaa can be Arg or Gln

<220>  
<221> MISC\_FEATURE  
<222> (9) .. (9)  
<223> Xaa can be Lys or Gln

<400> 71

Thr Thr Xaa Xaa Xaa Met Ala Xaa Xaa Cys  
1 5 10

<210> 72  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Pep21-SCX5\_BUTEU sequence

&lt;400&gt; 72

Thr Thr Asp Pro Asn Met Ala Lys Lys Cys  
1 5 10

&lt;210&gt; 73

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Chlorotoxin Peptide 21 consensus sequence

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (4)..(4)

&lt;223&gt; Xaa can be His or Pro

&lt;400&gt; 73

Thr Thr Asp Xaa Asn Met Ala Lys Lys Cys  
1 5 10

&lt;210&gt; 74

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Pep21-SCXP\_ANDMA sequence

&lt;400&gt; 74

Thr Thr Asp Pro Tyr Thr Glu Ser Lys Cys  
1 5 10

&lt;210&gt; 75

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; Chlorotoxin Peptide 21 consensus sequence

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (4)..(4)

&lt;223&gt; Xaa can be His or Pro

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

&lt;222&gt; (5)..(5)

&lt;223&gt; Xaa can be Gln or Tyr

&lt;220&gt;

&lt;221&gt; MISC\_FEATURE

<222> (6)..(6)  
<223> Xaa can be Met or Thr

<220>  
<221> MISC\_FEATURE  
<222> (7)..(7)  
<223> Xaa can be Ala or Glu

<220>  
<221> MISC\_FEATURE  
<222> (8)..(8)  
<223> Xaa can be Arg or Ser

<400> 75

Thr Thr Asp Xaa Xaa Xaa Xaa Lys Cys  
1 5 10

<210> 76  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin Peptide 21 consensus sequence

<400> 76

Thr Thr Asp Pro Asn Met Ala Lys Lys Cys  
1 5 10

<210> 77  
<211> 7  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Chlorotoxin derivative STP-1

<400> 77

Thr Asp Pro Gln Met Ser Arg  
1 5

<210> 78  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 8 sequences

<400> 78

Gly Gly Lys Gly Arg Gly Lys Ser Tyr Gly  
1 5 10

<210> 79  
<211> 9  
<212> PRT  
<213> Artificial sequence .

<220>  
<223> Peptide 8a sequence

<400> 79

Gly Lys Gly Arg Gly Lys Ser Tyr Gly  
1 5

<210> 80  
<211> 8  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 8b sequence

<400> 80

Lys Gly Arg Gly Lys Ser Tyr Gly  
1 5

<210> 81  
<211> 7  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 8c sequence

<400> 81

Gly Arg Gly Lys Ser Tyr Gly  
1 5

<210> 82  
<211> 10  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21 sequence

<400> 82

Thr Thr Asp His Gln Met Ala Arg Lys Ser  
1 5 10

<210> 83  
<211> 8  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21b sequence  
  
<400> 83

Asp His Gln Met Ala Arg Lys Ser  
1 5

<210> 84  
<211> 7  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21c sequence

<400> 84

His Gln Met Ala Arg Lys Ser  
1 5

<210> 85  
<211> 6  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21d sequence

<400> 85

Gln Met Ala Arg Lys Ser  
1 5

<210> 86  
<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21a-A1 sequence

<400> 86

Ala Asp His Gln Met Ala Arg Lys Ser  
1 5

<210> 87  
<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21a-A2 sequence

<400> 87

Thr Ala His Gln Met Ala Arg Lys Ser  
1 5

<210> 88  
<211> 9  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Peptide 21a-A3 sequence  
  
<400> 88

Thr Asp Ala Gln Met Ala Arg Lys Ser  
1 5

<210> 89  
<211> 9  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Peptide 21a-A4 sequence  
  
<400> 89

Thr Asp His Ala Met Ala Arg Lys Ser  
1 5

<210> 90  
<211> 9  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Peptide 21a-A5 sequence  
  
<400> 90

Thr Asp His Gln Ala Ala Arg Lys Ser  
1 5

<210> 91  
<211> 9  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> Peptide 21a-A7 sequence  
  
<400> 91

Thr Asp His Gln Met Ala Ala Lys Ser  
1 5

<210> 92

<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21a-A8 sequence

<400> 92

Thr Asp His Gln Met Ala Arg Ala Ser  
1 5

<210> 93  
<211> 9  
<212> PRT  
<213> Artificial sequence

<220>  
<223> Peptide 21a-A9 sequence

<400> 93

Thr Asp His Gln Met Ala Arg Lys Ala  
1 5

<210> 94  
<211> 9  
<212> PRT  
<213> Mesobuthus tamulus sindicus

<220>  
<223> GenBank Accesssion No. P15229, small toxin

<400> 94

Thr Thr Asp Gln Gln Met Ser Lys Lys  
1 5

<210> 95  
<211> 9  
<212> PRT  
<213> Leiurus quinquestriatus hebraeu

<220>  
<223> GenBank Accesssion No. P55966, probable toxin

<400> 95

Thr Thr Asp Pro Gln Met Ser Lys Lys  
1 5